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**MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY  
UNITED STATES DEPARTMENT OF AGRICULTURE.**

Number 47-48.

WILL TO WIN THE WAR &amp; WIN THE WAR.

March-April, 1918

**BUY  
UNITED STATES GOVERNMENT LIBERTY BONDS-**

PARADOXICAL AT FIRST GLANCE, IT IS NEVERTHELESS TRUE, THAT THE WAR WILL BE WON LARGELY BY THOSE WHO STAY AT HOME! UNLESS WE, IN OUR "HOME TRENCHES", CARRY OUR OBJECTIVES, OUR MEN AND OUR ALLIES MUST SUFFER, PHYSICALLY AND MENTALLY! AS THE LACONIC JOHN PAUL JONES SAID, WHEN CALLED UPON TO SURRENDER - SURRENDER! I HAVE NOT YET STARTED TO FIGHT!" SO WILL WE, IN ONE VOICE, BY EVERY THOUGHT AND ACTION, DECLARE THAT WE TOO - "HAVE NOT YET STARTED TO FIGHT!" HE WHO WOULD EVEN DAY-DREAM OF THIS TURMOIL CLOSED BY PREMATURE PEACE - IS A COWARD OR MAUDLIN, AND BY THE SAME TOKEN, THE EXAGGERATED PRIVATIONS AND SACRIFICES WITH WHICH WE CREDIT OURSELVES, MUST BE ECLIPSED BY THE NECESSITIES OF THE COMING MONTHS!

**GIVE OF YOUR RESOURCES WILLINGLY!  
THIS COUNTRY NEEDS NO RECREANT SYMPATHY - OR ARRANT DOLLARS!**

**BOOKS FOR YOUR SOLDIERS AND SAILORS.**

The American Library Association through its Library War Service is conducting a nation-wide campaign for the gift of books for the soldiers and sailors. For every man in service it hopes to have a book in service. The fund of \$1,700,000. already given by the American people covers the erection and maintenance of the buildings and library service at the 32 cantonments as well as the purchase of the books themselves, but this is far too small to satisfy the great demands for books which are now coming in. **A half million more are needed at once.** The need can be filled if the American will help again. No money is asked now - simply that you shall go over your bookshelves and give what you can spare to the men in khaki. These books are to be turned in at appointed places whence they will be sent to the Library of Congress and later forwarded to the camps, transports, naval stations and overseas. Send novels, tales of adventure, detective stories and standard fiction; up-to-date books on civil, mechanical and electrical engineering, the trades, business, the professions and agriculture; recent text-books on military subjects, mathematics, the sciences and foreign languages; books of travel, history, biography, poetry and the present war; dictionaries and new encyclopedias. Books given by members of the Bureau of Entomology in Washington may be brought to the Bureau Library or to the Main Library of the Department of Agriculture.

**DOCTOR HOWARD VISITS ENTOMOLOGY FIELD STATIONS: SOUTH AND WEST.**

The Chief of the Bureau returned from a trip to the South and West on the 10th of March. He visited the stations at Orlando and Miami, Florida, and stopped at West Palm Beach to see Mr. T. N. Wilson, County Agent, and local men of prominence about the possibility of undertaking an investigation of the damage done to live stock by gad-flies in that region. Texas fever-tick extermination has been carried to such a point in that part of Florida that the gad-flies remain the only serious difficulty in successful cattle raising. He visited the station at Audubon Park, New Orleans, and also saw Messrs. Milliken, Hutchison and King in that city. He stopped at Houston to consult with Doctor Hunter, and NOTE: Owing to press of work, delaying the publication of this number, it has been necessary to cover two months in this single issue.



then went to San Antonio where he consulted with Mr. Vickery, and, in company with Doctor Hunter, went to Camp Travis where Lieutenant Van Dine is now stationed and looked into the antimosquito work which is being done at that point. He called at Fort Sam Houston, found Captain Herms absent, but had a brief talk with Major Kofoed who is very insistent upon the need of medical entomologists in the sanitary service of the great camps. He stopped at Dallas, Texas, to consult Mr. Bishopp and the force at the Reiger Avenue laboratory, and saw some interesting work in the fly-protection of packing-houses and also interesting experimental work against the heel-fly at one of the large dairy establishments. From Dallas he returned to Washington.

#### BUREAU VISITOR DURING MARCH.

Dr. Carlos Moreira of Rio de Janeiro, Brazil, Chief of the Bureau of Agriculture of the National Museum, and Commissioner of the Department of Agriculture of Brazil, visited the Bureau of Entomology for two or three days during the month. Dr. Moreira was in this country as a special commissioner with many assignments. He was able to spend only a very small part of his time with the entomological force of the Bureau.

#### BROOD IX OF THE PERIODICAL CICADA IN 1918.

The main location of this brood is the rather compact territory extending from the southern part of West Virginia, across Virginia into South Carolina. Widely separated swarms, of small import, have been reported from Ohio. A number of minor swarms occurred in northern West Virginia and one in northern Virginia. **Any Bureau men within this region and others are requested to report recurrence of these swarms this year.** Next year, 1919, Brood X, the largest of the seventeen-year broods, is due, which will be therefore the great Cicada year of the current seventeen-year period. Brood X occupies the Ohio Valley and the Alleghany mountain region from Alabama and Georgia northward through Pennsylvania to scattered colonies in New York and some of the New England States. [C. L. M.]

#### A PRACTICAL DEMONSTRATION OF THE APPLICATION OF THE PHENOLOGICAL CHART TO WHEAT SOWING.

Dr. Hopkins has returned from a trip to West Virginia and reports that wheat sown on the date recommended in the wheat seeding map calendar for West Virginia, issued by the Department last fall, looks 50 per cent better than that sown 10 to 15 days later. This indicates that if all wheat had been sown on or near the dates given for the several States for which map calendars were issued, it would have resulted in a greatly increased production this year.

#### WINTER KILLING OF INSECTS.

**Extract from letter from Mr. Champlain, of February 18, 1918.**

"I find considerable evidence of winter killed woodboring larvae at this time. In some of my *Magdalis* trees I find many dead larvae although it is not too soon to get a percentage. As soon as we have a good thaw I expect to get some data on it. I find it so in standing infested trees and in some I felled and left lying on the ground. I do not notice much difference as yet but warm weather will show it.



The effect of the winter on parasites and predators will be interesting to watch.

I find the severe winter has killed many larvae, especially those in or beneath bark as *Magdalis* or *Scolytus*."

Extract from letter of Dr. Hopkins of Feb. 21st in answer to the above.

"Your reference to the winter-killing of insects is of special interest and you should get as much data as you can on this subject, relating to as many different insects as possible. It is of special importance to note what effect it has on *Scolytus* in hickory."

Extract from letter from Mr. Champlain, of March 15, 1918.

"In regard to winter killed insects, I find that about 50% of the *Magdalis* broods (*M. olivacea*) have been killed in the hickory saplings here.

About the same per cent in infested trees felled last fall and left dying on the ground as there were in standing infested trees. The *Magdalis* seem to go into the bark more than previous years. About the same per cent of predators (*Chariessa pilosa*) in these hickories killed.

Dead wood borers as *Leptura*, etc. apparently not harmed.

Have found some *Prionus* larvae in roots that appear to be winter killed.

Many twig borers, barkboring Cerambycidae and larvae in stems of weeds, vines, etc. winter killed - no percentage on these, as the collecting was scattered.

So far have not found any *Agrilus* that were killed, all seem to be healthy but deeper into the wood.

I have no information on *Scolytus* as the infestation in this state and at New Haven where I had previously made observations seems to be on the wane. I do not think it is very bad in Connecticut now. The nearest infestation, that is of any extent is that on Long Island.

There is still plenty of time to make observations on winter killed insects as we have had no spring weather yet, ground frozen, snow and stormy. So I will continue to make observations as I find evidence.

I think the hard winter has killed or injured some of the trees as well as the insects, especially some fruit trees, will be able to determine this better - later."

Extract from letter from Dr. Hopkins of March 19, 1918, in answer to Champlain's letter of March 15, 1918.

"I am very glad indeed to get the information relating to the winter-killing of insects. This is a very important and interesting subject to be studied in connection with the phenological and climatic work."

Apparently all the bagworms are killed in the vicinity of Kanawha Station, W. Va., - observations by Dr. Hopkins - March 23/18.

In the third week of March Mr. Kotinsky found *Chionaspis euonymi* Comst. on *Euonymus* bushes at St. Elizabeths Hospital, D. C., showing undoubted evidence of winter killing. Among hundreds of specimens turned up, not one was found alive. This was among green leaves, though the wood of the twigs was also evidently frost killed.

Likewise *Chionaspis americana* Johns. on elm twigs received from Provi-



dence, Rhode Island showed distinct evidence of having been winter killed. The wood was alive but the insects (all females) were dead; a limited amount of the characteristic purplish fluid in their bodies and the few eggs under an occasional scale seem to indicate that the insects were overtaken by an early frost which had killed them before the work of oviposition was completed.

## OPENING OF THE SPRING CAMPAIGN AGAINST INSECTS IN INDIANA.

The spring campaign in the territory covered by the Lafayette laboratory has been inaugurated by the temporary establishment of two substations for the season's work. C. F. Turner is now stationed at Nashville, Ill., where he will continue the Hessian-fly investigations following the work of W. H. Larrimer, who on January 1 was granted a furlough to enter the Officers' Training Camp. D. A. Ricker will be stationed at Janesville, Wis., to conduct experiments in the field, chiefly on the corn root-aphis and white grub. In connection with the work of these stations, as well as the work at the Lafayette laboratory, it is planned to obtain complete records of the meteorological conditions with a view to correlating these with insect activities and plant growth.

Nothing of interest has made its appearance in the field but the indications permit us to conjecture that Hessian-fly infestation will be light this spring and probably this fall as well. Cutworms and grasshoppers were common in many localities last year and the winter has been favorable for their successful hibernation so that an especial lookout should be made for these pests. Indications point to an abundance of chinch bugs in certain more or less restricted areas in southern Illinois.

Conferences have been held with the entomologists of Illinois and Wisconsin and it is planned to hold similar meetings with the entomological authorities of Indiana and Michigan in the near future. The purpose of these conferences is to more closely coordinate the work of the States and Federal government to secure a maximum of results. We are receiving the most cordial cooperation from all state authorities.

Our station staff has been depleted by the loss of Larrimer and Mason who have entered the army service. W. O. Hollister, formerly with the Davey Tree Company, Kent, Ohio, has recently reported for duty at this station.

We have recently received visits from D. B. Whelan, extension entomologist of Michigan and D. K. McMillan formerly connected with this Bureau and at present with the Illinois State Council of Defense.

During the months of January and February, C. F. Turner and the writer conducted a series of tests with poison bait against armyworms (*Cirphis unipuncta*) to determine the possible values of different mixtures and the relative value of sawdust as a substitute for bran and of various arsenicals in comparison with Paris green. Briefly, our results showed bran to be superior to sawdust although fairly good results were obtained with sawdust alone as well as a combination of sawdust and bran and they warrant further trials in the field under natural conditions. Considering their effectiveness and rapidity of action the various arsenicals seem to give reliable comparative value in the order here named, -Sodium arsenite, Paris green, crude arsenious oxide, calcium arsenate, lead arsenate, and common white arsenic (arsenious acid). All were tested at a comparative strength of one pound of poison to 40 pounds of filler excepting lead arsenate which was used 1 to 20. The first three mentioned were similarly effective with calcium arsenate nearly equal in effectiveness. Lead arsenate was effective when used 1 to 20 but its action was slow which makes it less desirable for use against cutworms or grasshoppers. Common white arsenic gave us unsatisfactory results. Crude arsenious oxide used



in the experiments is a byproduct of the copper smelters and is purchasable at 8¢ per pound but can be obtained only in barrel lots of about 400 or 500 pounds per barrel. It is planned to obtain a barrel of this arsenical for experimental work and entomologists desiring to test it out can obtain same by addressing this laboratory.

(signed) John J. Davis.

#### LIBRARY.

Miss Mabel Colcord, Librarian.

#### NEW BOOKS

- Barton, W. H. and Stewart, W. P. Boll weevil as farm manager. 32p. (Clemson College South Carolina. Extension Division in cooperation with the U. S. Dept. of Agriculture. Farmers' reading course. Bul. 27)
- British Museum (Natural History) The fly danger. (1917) broadside.  
The mosquito danger. (1917) broadside
- Directories. List of American directories in the Library of the U. S. Dept. of Agriculture. (Library Notes No. 3, Nov. 1917)
- Dodd, A. P. The cane grubs of Australia Part II. Being a continuation of the results of investigations as commenced in Bulletin No. 2. Brisbane, 1917. 30p. (Queensland. Bureau of sugar experiment stations. Div. of Ent. Bulletin No. 6)
- Finch, V. C. and Baker, O. E. Geography of the world's agriculture. Washington, 1917. 149p. 26 x 34 cm. (U. S. Dept. of Agr. Office of the Secretary. Contribution from the Office of Farm Management, W. J. Spillman, Chief)
- Gonzalez, Homobono Breves apuntes sobre el cultivo de la morera y la cria del gusano de seda. ed. 5 Mexico, 1917. 70p. 29 fig.
- Landes, Henry A geographic dictionary of Washington. Olympia, 1917. 46p. maps (Washington Geol. Survey Bul. 17)
- Minnesota state entomologist. Special report... work on the white pine blister rust in Minnesota. 1916. 19p. illus., col. pl. Nov. 15, 1916 (Minnesota) state entomologist Circular 40)  
Further report on white pine blister work in Minnesota 1916-17. (Minnesota state entomologists Circular 41)
- Official register of the United States 1917. Directory (Blue Book). Compiled by the Department of Commerce, Bureau of the Census. Washington, 1918. 896p.
- West, Frank L. and Edelfsen, N. E. Orchard heating. 48p. (Utah Agr. Coll. Exp. Sta. Bulletin 161)

#### BEE CULTURE

E. F. Phillips, Apiculturist in Charge.

E. W. Atkins was on duty in Kansas during the month of March and will go into Nebraska on April.

E. F. Atwater and Geo. S. Demuth began a series of special meetings on European foulbrood control in California which will continue until April 6, after which Mr. Demuth will return to Washington.

C. E. Bartholomew went to Utah for work on March 11.

W. H. Foster concluded his work in Washington on March 15 and then went to Oregon.

Kennith Hawkins is doing extension work in Arkansas during March.



G. C. Matthews left Minnesota on March 15 and returned to Wisconsin for a series of meetings.

E. F. Phillips attended the meeting of the Pennsylvania Beekeepers' Association at Lancaster, March 15-16.

The G. B. Lewis Co., Watertown, Wisconsin, has place at the disposal of the Department their advertising space for April as a means of informing beekeepers of the need for more honey in 1918.

Plans for club work in beekeeping have been submitted to the States Relation Service.

#### SOUTHERN FIELD CROP INSECT INVESTIGATIONS.

W. D. Hunter, Entomologist in Charge.

E. A. McGregor reported in Washington in order to complete his revision of the genus *Tetranychus* and to make plans for next season's work on cotton insect pests in the Imperial Valley of California.

R. H. Hutchison has been assigned to the investigation of the body and head louse with headquarters in New Orleans.

J. U. Gilmore has opened a station at South Boston, Va., for work on tobacco insects.

F. L. Chamberlain has been assigned to work on the tobacco budworm with headquarters at Quincy, Fla.

A. K. Pettit connected with the Dallas laboratory has enlisted in the coast Artillery and left for his post, March 5.

E. H. Gibson has been commissioned a lieutenant in the Sanitary Corps of the U. S. Army and has joined his command at the cantonment.

#### DECIDUOUS FRUIT INSECT INVESTIGATIONS.

A. L. Quaintance, Entomologist in Charge.

Under an allotment of \$10,000 from the Act for Stimulating Agriculture, available until June 30, 1918, scouting work has been begun to determine the present distribution of the Oriental peach moth, *Laspeyresia molesta*. A conference of interested Entomologists was recently held in Washington and plans for the work thoroughly discussed. The following were present at the conference:

E. N. Cory, of Maryland.

P. Garman "

W. J. Schoene, of Virginia.

T. J. Headlee, of New Jersey.

Wesley Webb, of Delaware.

C. A. McCue, "

L. M. Peairs, of W. Virginia.

W. E. Britton, of Connecticut.

Messrs. W. B. Wood, W. D. Whitcomb and Dr. A. L.

Quaintance, of the Bureau of Entomology.

Owing to delay in receiving notification of the meeting Prof. J. G. Sanders was not able to be present. Dr. E. P. Felt and Prof. Geo. G. Atwood were unable to come to Washington, but expressed their active interest in the matter.

Mr. A. J. Ackerman, who was assist Mr. Simanton at Benton Harbor, Mich. in connection with orchard insecticide investigations, has been transferred to the Bureau's laboratory at Bentonville, Ark., where he will be in charge of the field operations in connection with apple insect investigations at that place.

E. H. Siegler, who has been in Washington preparing reports and manuscripts



on the subject of his field investigations, has now returned to Wallingford, Conn., where he will resume his investigation of apple insects in that region.

J. J. Culver, who has been assisting Mr. Gill at Monticello, Fla. in connection with pecan insect investigations, has been placed in charge of peach insect investigations at Fort Valley, Ga., which work will be carried out in cooperation with the Bureau of Plant Industry.

H. G. Ingerson, who has been in charge of the Bureau laboratory at Sandusky, Ohio in connection with grape insect investigations, has been transferred to Cleveland, Ohio, where he will give special attention to the work in that region, while G. A. Runner will look after the work tributary to Sandusky.

A laboratory has been established at Seaview, Wash. for the investigation of cranberry insects in that region in cooperation with the Washington Agricultural College, H. K. Plank being in charge of the work.

R. W. Kelly, a graduate of the Ohio State University, has been appointed as Special Field Agent and will be engaged in extension work in deciduous fruit insect control, with headquarters at Lafayette, Ind.

A. B. Black, a graduate of the Oregon Agricultural College, has been appointed a Special Field Agent and will be engaged in extension work in deciduous fruit insect control, with headquarters at Corvallis, Oregon.

R. B. McKeown, who has been assisting Mr. Fabis in connection with pecan-insect investigations at Brownwood, Texas, has been transferred to the Bureau's laboratory at Medford, Oregon, where he will assist M. A. Yothers in connection with apple-insect investigations in that region.

**FEDERAL HORTICULTURAL BOARD.**  
C. L. Marlatt, Chairman.

With relation to the origin of the pink bollworm in the Trinity Bay region, Texas, Dr. Hunter reports under date of March 8 the results of investigations made by Mr. McKinney with respect to entry of Mexican cotton during 1914-15. Mr. McKinney was able to trace some 2,000 bales of such cotton which came from the Laguna via El Paso to Galveston, and was on the docks at that place at the time of the great storm of 1915. Much of the cotton that was washed away in the course of this storm was salvaged and the marks obliterated so that it was impossible to prove just how much of the Mexican cotton was lost and widely scattered. This information at least indicates definitely the movement of such cotton to Galveston, and leaves a fair supposition that of this cotton several hundred bales were washed ashore around the bay. In connection with this same investigation, Mr. McKinney has traced movement during the same period of some 16,000 bales of Mexican cotton entering through the port of El Paso. Most of this cotton was shipped to foreign markets but a considerable number of bales went to various mills in the South, namely, to mills in Virginia, South Carolina and Texas. Steps have been taken to investigate the cotton growing areas, if any, in the vicinity of the mills indicated.

The general status of the pink-bollworm work in Texas remains as reported in last month's Letter. There is, however, a somewhat disquieting movement incited by a few persons to organize cotton planters and to induce them to plant cotton in the noncotton areas with the intention of contesting the validity of the recently enacted Texas law under which these noncotton areas are established. Every means, educational and other, will be taken to discourage this movement and uphold the law. Uncontrolled violation of this law will necessitate immediate quarantine action against the State of Texas to protect the other cotton-growing States. Such action would put very burdensome restrictions on commerce and would result



in great loss to the State and would probably mean that the pink bollworm would soon get beyond any possible control and become a permanent burden on the cotton crop of Texas and ultimately would spread throughout the entire South. It is not believed that anyone in Texas or elsewhere would be willing to assume the responsibility for this outcome. The establishment and maintenance of cotton-free areas in the infested districts and the other restrictions and precautions being taken and to be taken afford the only means of exterminating the pink bollworm, but this result can be accomplished only by the heartiest cooperation on the part of the State of Texas and of the affected interests and by the acceptance for a few years of the necessary self-sacrifice on the part of the planters within the quarantined areas. Every effort to facilitate the growth of substitute crops will be made to reduce this self-sacrifice and loss to the minimum.

The Agricultural Appropriation Bill as it passed the Senate increased the appropriation for pink bollworm work in the United States and Mexico from \$500,000 to \$800,000 and added a provision making available for the increased needs of any item covered in the appropriation ten per centum of any of the other items included. This is particularly to meet the needs of the border disinfection and the necessity of turning into the Treasury any receipts from charges made for such disinfection.

Mr. Busck has returned from Mexico and reports the pink-bollworm station established at Lerdo to be in good working order. Vast quantities of pink bollworms have been secured and are being made the subject of a large variety of biological and control tests. The station is housed in a huge substantial building which contains within its walled enclosure sufficient land for experimental plots of cotton. The station has been equipped with breeding and other apparatus. A portion of the building has been separately rented by Messrs. Tejada, Loftin, and McKinney as their own private headquarters, who have installed their servants and cook. Unusually favorable opportunities have therefore developed for the work. Mr. Tejada has charge of some ten experimental plots on neighboring ranches mostly for the determination of possible substitutes for cotton culture, in the effort which it is hoped will be later undertaken looking to the extermination of the pink bollworm in the entire Laguna region.

Foreign and domestic quarantines were promulgated March 15, effective April 1, 1918, prohibiting the further entry into the United States from all foreign countries of banana plants, and extending the same prohibitions to Hawaii and Porto Rico. These quarantines have reference particularly to the banana root borer (**Cosmopolites sordidus Germar**) which has already been found in two limited localities in Florida. Work now under way, under the direction of Mr. Newell, will probably lead to its extermination at these points.

As a result of war needs the Bush Terminal Company in Brooklyn has been taken over by the War Department, and this had led to the need of a transfer of the fumigation plant established in connection with this company for the treatment of foreign cottons arriving at the port of New York. Plans are now under way for the removal of this plant to another convenient location. A second fumigation plant has recently been established in Seattle, and there is a proposal also of establishing a second plant in San Francisco. If this last plant is carried out it will make available on the Pacific Coast four vacuum plants for the disinfection of cotton or other imports, and a like number on the Atlantic Coast, two at Boston and two at the port of New York.

The personnel of the Board in Washington has been increased by the addition of Mr. Charles A. Weigel who takes the place of Mr. Morrison. Mr. Weigel graduated from the New Hampshire State College of Agriculture and recently completed graduated work at the Post Graduate School of Ohio State University. During the last five summers he worked as an assistant and extension entomologist at the New Hampshire State College of Agriculture and Experiment Station.



Messrs, Sasscer and Sanford will, during the latter part of March and the first of April, be in Florida inspecting and certifying the stock for shipment at the Plant Introduction Gardens Miami and Brooksville. The pathological inspections of this stock will be conducted by Dr. Kauffman

#### FOREST ENTOMOLOGY.

A. D. Hopkins, Forest Entomologist.

The falling of the catkins of the Carolina poplar at Washington and Falls Church on March 21 indicates that the advent of spring this year is 13 days earlier than it was last year. Since this date agrees exactly with the spring solstice, this may be taken as a normal spring as regards its advent. In the Carolina poplar and Lombardy poplar the catkins develop at the same time and are reddish, while in the silver poplar (*P. alba*) they are gray and develop 12 days earlier. The cottonwoods have a yellow catkin which develops much later than that of the Carolina. [A. D. H.]

S. A. Rohwer spent several days this month studying types of forest hymenoptera in Museums at Boston, Massachusetts and New Haven, Conn. He also visited the field station at Lyme, Conn., to confer with Mr. Champlain on rearing work of forest insects.

#### TROPICAL AND SUBTROPICAL FRUIT INSECT INVESTIGATION

C. L. Marlatt, Entomologist in Charge.

Mr Mann has nearly completed his work for the time being in Cuba, and will in the near future make a study of the black-fly conditions in the Bahamas.

The appointments of Messrs. Fredrick W. Urich, Archibald H. Ritchie, Patricio Cardin and Carlos E. Porter have been extended for another year. Considerable valuable fruit fly and other material has already been received from these collaborators and more is expected next year.

Miss Emily S. Reed has been appointed as Scientific Assistant to work under the direction of Mr. Morrison. Miss Reed is a recent graduate of Cornell University, where she took a major in entomology, and has assisted in special work for Professors Comstock and Needham of that University. Mr. Ernest R. Barber advises that the *Vedalia* is now well established in New Orleans and that he has recently shipped to Mr. Moznette, Miami, Fla., a colony of fifty adult beetles, and will shortly send him some three hundred more. These shipments are for the purpose of controlling a mild outbreak of *Icerya* in the Miami section. Recently Mr. Barber has made trips in Mississippi, Tennessee, and Texas in relation to the control of the Argentine ant and the cottony cushion scale.

#### TRUCK CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge.

Marion R. Smith, Scientific Assistant, who has been engaged during the year on investigations of insects as carriers of truck-crop diseases, especially the mosaic disease and the wilt of cucumber, at Plymouth, Ind., and who has been assisting in truck-crop work at Baton Rouge, La., will resume his work in Indiana in April.

W. T. Ham, of Pullman, Wash., Special Field Agent, is conducting extension work on truck-crop insects in the State of Washington, with headquarters at Pullman.

Boyd L. Boyden, Oxnard, Calif., Scientific Assistant, who resigned from the



research service recently has been reappointed and will be engaged in sweet-potato weevil investigations in Florida.

Frank R. Cole, Scientific Assistant, has been transferred from Truck-Crop Insect Investigations Cereal and Forage Insect Investigations.

F. M. Wadley, Wichita, Kans., Scientific Assistant, reports that the strawberry leaf-roller (*Ancylis comptana*) which passes the winter as larva is transforming to pupa. Cutworms in that vicinity are thus far scarce doubtless owing to the exceedingly dry autumn and the severe winter following.

O. K. Courtney, who has been stationed at Gainesville, Fla., in extension work, has been assigned to a station to be established at Glen St. Mary, Fla., where he will work in cooperation with the State authorities in Florida, and Georgia, with a view to the eradication of the sweet-potato weevil in Baker County, and the adjoining Charlton County, Georgia.

Thomas H. Jones, Entomological Assistant, has been placed in charge of sweet-potato weevil investigations in Louisiana and will change his headquarters from Baton Rouge to New Orleans.

#### EXTENSION ENTOMOLOGY.

J. A. Hyslop, Entomologist in Extension Work.

E. G. Baldwin has been appointed as Special Field Agent to carry on Apiculture extension work in Indiana, Ohio and Michigan filling the vacancy made by the enlistment of P. W. Erbaugh.

F. C. Barber of the sugar-cane insect research staff has been assigned to carry on extension work along the line of control of sugar-cane insect.

A. Burr Black has been appointed Special Field Agent to assist in the extension work in control of deciduous fruit insects in Oregon and is stationed at Corvallis.

A. D. Borden of the Tropical and Subtropical Fruit Insect laboratory located at Alhambra has been temporarily assigned to assist in extension work in control of citrus pests in California.

B. L. Boyden, Scientific Assistant has been appointed to assist in truck-crop extension work in California.

Professor A. C. Burrill formerly State Entomologist of Idaho has been appointed Special Field Agent to assist in extension work on cereal and forage insect control in Washington and Oregon.

R. D. Campbell in charge of Truck Crop Insect Control laboratory in Alhambra, Calif., is assisting the extension specialists in this line of work in California.

George Coddling has been appointed Special Field Agent to carry on work in truck-crop insect control in connection with the Connecticut extension service.

Felix Dabadie has been appointed Special Field Agent to fill the position in extension work in control of truck crop insects in Louisiana made vacant by the resignation of E. P. Barrios.

Professor R. W. Doane of Stanford University is collaborating with the Bureau in extension work on control of stored-product insects in California.

A. B. Duckett, Assistant Entomologist has been temporarily transferred to extension work on control of stored-product insects.

H. N. Gellert has been transferred from extension work in control of general truck crop insects in North Carolina and Virginia to special work in control of sweet potato weevil in Florida.



The appointment of W. C. Handlin to carry on extension work in control of cereal and forage insects in Oregon and Washington is revoked owing to his having been mustered into the military service.

R. W. Kelly has been appointed Special Field Agent to carry on extension work control of deciduous-fruit insects in Indiana with headquarters at Lafayette.

George H. Rea has been appointed Special Field Agent to fill the vacancy in extension work in apiculture in New York State made by the resignation of David Running.

Max W. Reeher has been appointed Special Field Agent to assist in extension work in cereal and forage insects control in the Pacific Northwest. The entire field station staff at Forest Grove, Oregon will also devote considerable of their time to a campaign for the control of the clover midge (*Dasyneura leguminicola*) in this region.

J. S. Stanford who has been carrying on extension work in Idaho on deciduous-fruit insects has resigned.

B. G. Thompson has been appointed Special Field Agent to carry on extension work in control of cereal and forage insects in Oregon and Washington.

#### CEREAL AND FORAGE INSECT INVESTIGATIONS.

W. R. Walton, Entomologist in Charge.

C. W. Cartwright, formerly assistant at Knoxville, Tenn. Laboratory has resigned from the service to enter the Army.

W. O. Hollister, a graduate of the Connecticut Agricultural College has been appointed scientific assistant and detailed for service at the West Lafayette, Indiana field station under Mr. Davis.

Max Reeher and B. G. Thompson having been appointed special field agent for duty in Oregon, and Washington, They will pay special attention to the control of grasshoppers, clover flower midge, and insects in general affecting clover and alfalfa.

Reports of the presence of green bug in the wheat fields of Texas. The first report came from T. Scott Wilson on March 7, when he discovered the insect to be present in a field near Denton. An additional report has since been received through F. C. Bishopp saying that the green bugs was abundant in spots in the same general region which has long been known as a breeding ground for this pest. Owing to the severity of the winter throughout the wheat belt, it is not believed that any great danger of an outbreak of the insect may be feared during the coming spring. The Hessian-fly situation is apparently very much the same as it was last fall, judging by early reports from several different States and in the middle west and there seems to be little danger of any general outbreak of this insect in the immediate future. Chinch-bugs are unusually abundant in northern Texas and it is believed that a serious outbreak in that general region is to be expected during the next few months.

The Bureau of Entomology, with the U. S. States Relation Service cooperating, has issued and distributed a large edition of posters and leaflets dealing with grasshopper, chinch bug, and cutworm control respectively. These publications are illustrated by R. H. Snodgrass.



WAR RELIEF ASSOCIATION OF THE U. S. DEPARTMENT OF AGRICULTURE.

!!! S. O. S. !!!

Your War Relief Association needs more money! We have many competent workers but lack the funds to keep them busy. We are now receiving approximately \$1000 per month from less than half of the employees in the Department in Washington. If the other half would do their "bit" we could easily raise as much as \$2,000 per month, which is urgently needed.

Wool is expensive but it must be had. Skilled knitters are numerous and eager to work. We ought to be able to keep them busy. At present we cannot. The severe winter weather is past but another winter is coming and we must have proper equipment **ready** for our men when that time comes. We want to be able to equip the **relatives** of Department employees as well as the men entering the service from the Department and the Forest Engineers. Money is the only thing we lack to increase our output.

We could make twice the garments we are now making if we could keep our workers supplied with material. Do you want our wounded soldiers to go without the simple comforts of a change of clothing because we have failed in our full duty?

Our surgical dressings work room must be run at full capacity. This is vital. Remember--the lives of hundreds of our men depends upon the number of dressings we turn out. The work must not be limited for want of money.

If you are contributing, **increase** your contribution, if possible.

To double our present income we will need approximately the following additional contributors:

50	at	\$2.00	per	pay	day	\$100
100	"	1.00	"	"	"	100
500	"	.50	"	"	"	250
800	"	.25	"	"	"	200

**\$650**

**Executive Committee.**